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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/755,042

01/09/2004

Mou-Shiung Lin

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06/22/2006

NORTH AMERICA INTELLECTUAL PROPERTY CORPORATION

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EXAMINER

FENTY, JESSE A

ART UNIT

PAPER NUMBER

2815

DATE MAILED: 06/22/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/755,042

Applicant(s)

LIN ET AL.

Examiner

Jesse A. Fenty

Art Unit

2815

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 December 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 163-208 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 163-208 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 112

The rejections of the previous office action based on this statute are withdrawn in light of applicant's amendment to claims 166 and 204-206.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 163-208 are rejected under 35 U.S.C. 102(e) as being anticipated by Eichelberger et al. (U.S. Patent No. 6,396,148 B1).

In re claims 163, 179 and 197-99, Eichelberger (e.g., Fig. 1) discloses an electronic package comprising:

a substrate (101/104) comprising silicon (column 10, line 1);

a die (102) joined with said substrate; and

an upper metallization structure over said die, wherein said upper metallization structure comprises an electroplated metal (column 4, lines 47-49), wherein said upper

Art Unit: 2815

metallization structure comprises a portion connecting said multiple internal circuits and used to provide a ground voltage (column 5, line 31)

In re claims 164, 180 and 200, Eichelberger discloses the devices of claims 163, 179 and 198 respectively, wherein a cavity is in said substrate and accommodates said die, said die having a bottom surface joined with the bottom of said cavity.

In re claims 165, 181 and 201, Eichelberger discloses the device of claims 163, 179 and 198 respectively, wherein said substrate has a top surface (of 101) comprising a first region and a second region (below 104), said die joined with said first region, said second region not covered by said die, said first region being coplanar with said second region.

In re claims 166, 182 and 204, Eichelberger discloses the devices of claims 163, 179 and 198 respectively, wherein an opening in said substrate accommodates said die, said substrate having a top surface (at 104) coplanar with a top surface of said die.

In re claims 167, 183 and 202, Eichelberger discloses the device of claims 163, 179 and 198 respectively, further comprising a polymer layer (106; column 6, line 29) under a metal layer (108) of said upper metallization structure.

In re claims 168, 184 and 203, Eichelberger discloses the device of claims 163, 179 and 198 respectively, further comprising a polymer layer (106; column 6, line 29) over a metal layer (107) of said upper metallization structure.

In re claims 169 and 188, Eichelberger discloses the device of claims 163 and 179 respectively, wherein said die has a top surface at a horizontal level, said substrate

Art Unit: 2815

being under said horizontal level, said upper metallization structure being over said horizontal level.

In re claims 170, 189 and 207, Eichelberger discloses the device of claims 169, 188 and 197 respectively, wherein said top surface comprises multiple pads.

In re claims 171, 190, 208, Eichelberger discloses the device of claims 169, 188 and 197 respectively, further comprising a passive device over said horizontal level.¹

In re claim 172 and 191, Eichelberger discloses the device of claims 163 and 179 respectively, wherein said upper metallization structure further extends outside beyond an edge of said die.

In re claims 173 and 192, Eichelberger discloses the device of claims 163 and 179 respectively, further comprising an adhesive tape (103) joining said die and said substrate.

In re claims 174 and 193, Eichelberger discloses the device of claims 163 and 179 respectively, further comprising a conductive paste (103) joining said die and said substrate.

In re claims 175 and 194, Eichelberger discloses the device of claims 163 and 179 respectively, further comprising a bump (110) on a pad (114) of said upper metallization structure, wherein said bump comprises solder (column 8, line 44).

In re claims 176 and 195, Eichelberger discloses the device of claims 163 and 179 respectively, further comprising a bump (110) on a pad (114) of said upper metallization structure, wherein said bump comprises gold (column 9, lines 37-57).

Art Unit: 2815

In re claims 177 and 196, Eichelberger discloses the device of claims 163 and 179 respectively, further comprising a film layer (106) over said substrate and surrounding said die.

In re claim 178, Eichelberger discloses the device of claim 177, wherein said film layer comprises polymer.

In re claims 185-187, Cole discloses the device of claim 179. The limitations, "used to transmit" and "used to provide" are recitations of the intended use of the claimed device. Terms that simply set forth the intended use, a property inherent in or a function, do not differentiate the claimed composition of these elements from those known to prior art.

In re claim 205, Eichelberger discloses the device of claim 204, wherein said film layer comprises polymer.

In re claim 206, Eichelberger discloses the device of claim 197, wherein said portion comprises a ground bus (column 5, line 31).

Response to Arguments

Applicant's arguments with respect to claims 163-208 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

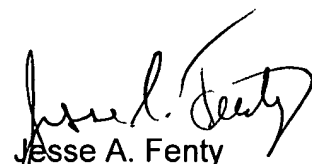
¹ Inherency dictates that the multiple metal lines separated by insulating layers will form natural capacitors in the upper layers of the package.

Art Unit: 2815

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jesse A. Fenty whose telephone number is 571-272-1729. The examiner can normally be reached on M-F 5/4.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ken Parker can be reached on 571-272-2298. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


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